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CLUSTER NO. 04

STUDENT EVALUATIONS TOOLS

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MOS 12B
COMBAT ENGINEER
SKILL LEVEL I

PREPARED BY
UNITED STATES ARMY ENGINEER SCHOOL
FORT BELVOIR, VIRGINIA 22060

FOR
U.S. ARMY RESERVE SCHOOLS

U.S. ARMY TRAINING SUPPORT CENTER
RESERVE SCHOOLS DIVISION
FORT EUSTIS, VA. 23604

D 103.2:

READEX FICHE best copy available

Management Instructions

This test booklet contains the student test and student test answer sheets for the Tool Cluster lessons. The test and test answer sheets are attached as Annexes A through F and are to be locally reproduced in the quantities necessary to satisfy local requirements.

Access to this test material is restricted to management personnel prior to actual student testing. Students are not to write in the booklets or keep test booklets after testing has been completed. Student responses are to be recorded on the seperate student answer sheet.

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ANNEX A

STUDENT TEST

(WRITTEN)

TASK #051-201-1001 Use and Maintain Hand Tools

NOTE: **This test is to be locally reproduced in sufficient quantities to satisfy local requirements.**

STUDENT INSTRUCTIONS:

This test is a two part test with multiple choice and true/false portions.

The multiple choice test has a picture of a tool and under the picture a choice of four names for the tool and four uses for the tool. Circle the letters that represent the correct name and the correct use of each tool. See the example below.

EXAMPLE:

Name		Use	
a.	House	a.	Light
b.	Car	b.	Shade
c.	Tree	c.	Water
d.	Church	d.	Heat

(The correct name is a. b. c. d.) (The correct use is a. b. c. d.)

Part Two of this test consists of true/false questions. Read the question carefully; circle True (T) if the statement is true and False (F) if the statement is false.

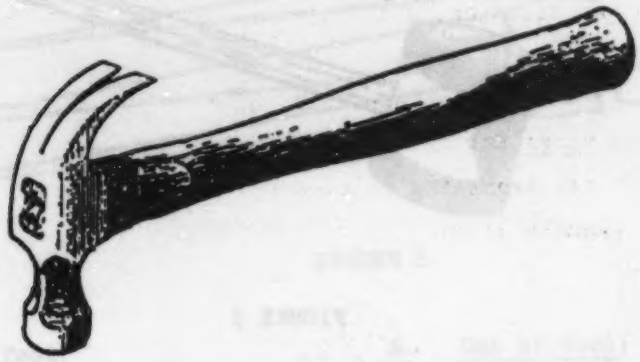

FIGURE 1

1. Name of Tool:

a. Ball peen hammer
b. Sledge hammer
c. Tacking hammer
d. Claw hammer

1. Use of Tool:

a. Break up concrete
b. Drive pickets
c. Driving and pulling nails
d. Beat out dents in metal

FIGURE 2

2. Name of Tool:

a. Axe
b. Blacksmith's double faced sledge
c. Adz
d. Pick

2. Use of Tool:

a. Break rocks, concrete, and drive metal stakes
b. Chop down trees and brush
c. Drive wooden stakes
d. Break hard dirt

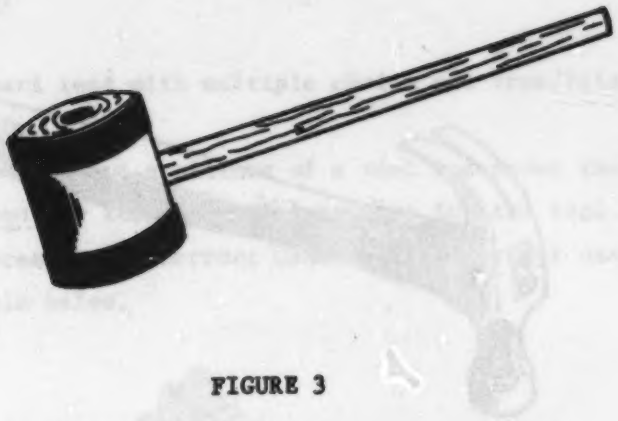

FIGURE 3

3. Name of Tool:	3. Use of Tool:
a. Mauler	a. Drive steel stakes
b. Hammer	b. Drive wooden stakes
c. Iron band maul	c. Break concrete
d. Sledge hammer	d. Drive nails

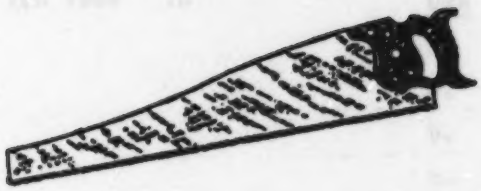

FIGURE 4

4. Name of Tool:	4. Use of Tool:
a. Hand saw	a. Cutting metal
b. Hack saw	b. Cutting holes in lumber
c. Key hole saw	c. Cutting trees
d. One man saw	d. Cutting lumber

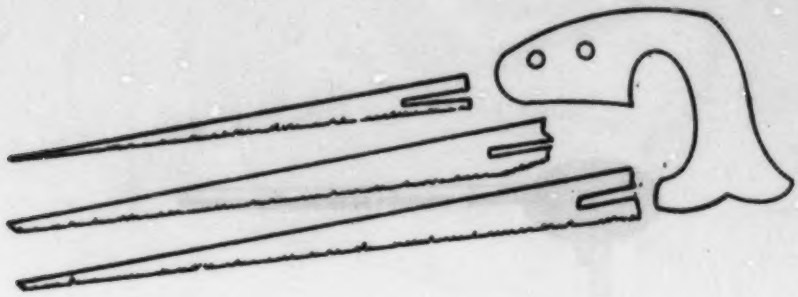

FIGURE 5

5. Name of Tool:

a. Rip saw
b. Coping saw
c. Nested saw
d. Band saw

5. Use of Tool: (Two answers are Required)

a. Cutting bricks
b. Cutting metal outlets
c. Cutting stone
d. Cutting holes in lumber

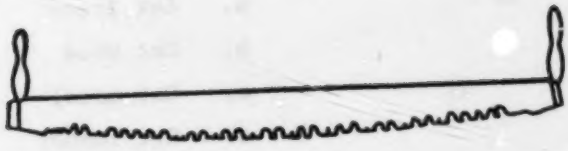

FIGURE 6

6. Name of Tool:

a. Hand saw
b. Two man cross cut saw
c. Rip saw
d. Hack saw

6. Use of Tool:

a. Fell trees and saw logs
b. Cut lumber with the grain
c. Cut finished lumber
d. Cut bars

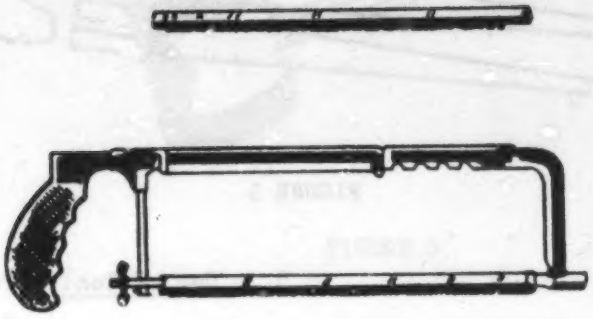

FIGURE 7

7. Name of Tool:	7. Use of Tool:
a. Cradle saw	a. Cut trees
b. Cresent saw	b. Cut wood
c. Coping saw	c. Cut metal
d. Hack saw	d. Cut lumber

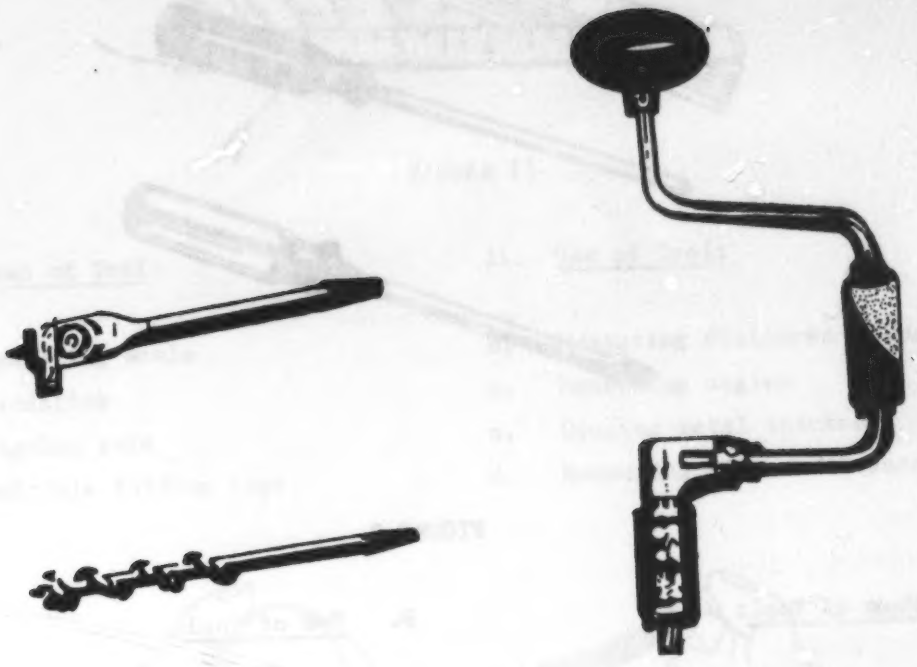

FIGURE 8

8. Name of Tool:

a. Brace and bits
b. Hand crank and tools
c. Metal drill
d. Power drill

8. Use of Tool:

a. Drill holes in metal
b. Drill holes in lumber
c. Drill holes in concrete
d. None of the above

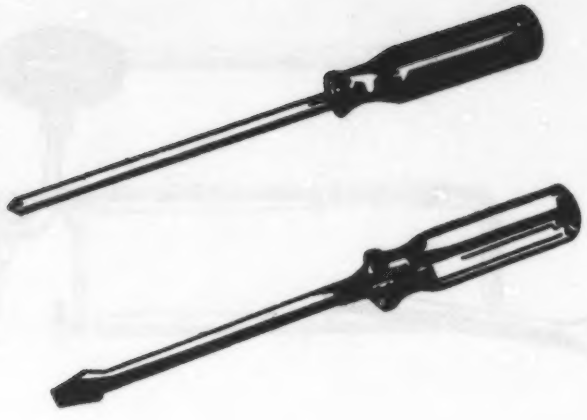

FIGURE 9

9. Name of Tool:	9. Use of Tool:
a. Putty knives	a. Tightening and loosening screws
b. Metal punches	b. Cutting nails and light metal
c. Chisels	c. Punching holes in light metal
d. Screw drivers	d. Tightening and loosening bolts

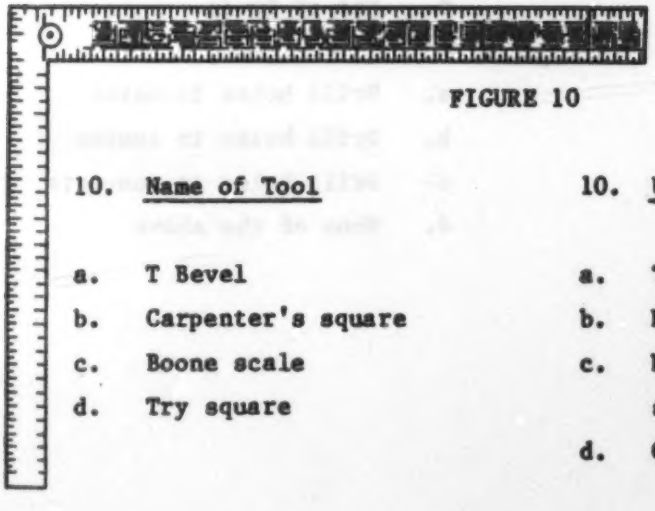

FIGURE 10

10. Name of Tool	10. Use of Tool
a. T Bevel	a. Transfer angles
b. Carpenter's square	b. Mark windows and doors
c. Boone scale	c. Measure, mark, and test squareness of lumber
d. Try square	d. Check leveleness of lumber

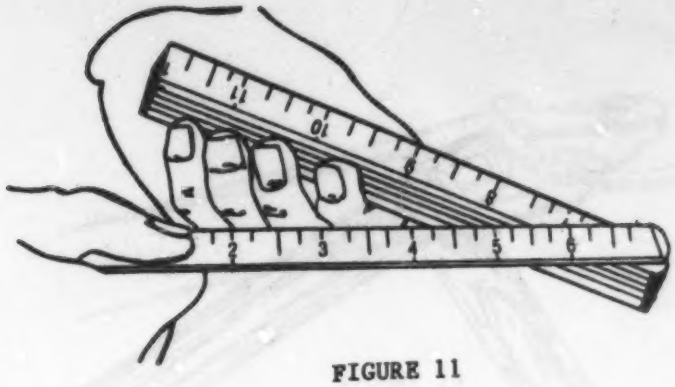

FIGURE 11

11. Name of Tool:

a. Measuring scale
b. Yardstick
c. Zig-Zag rule
d. Multiple folding tape

11. Use of Tool:

a. Measuring distances on lumber
b. Measuring angles
c. Gauging metal thickness
d. Measuring ground distances

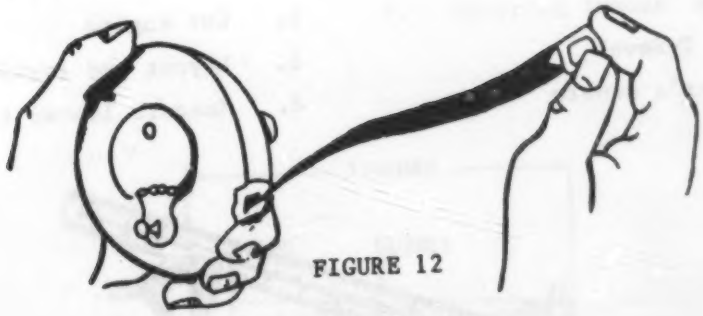

FIGURE 12

12. Name of Tool:

a. Zig-Zag rule
b. Steel measuring tape
c. String dispenser
d. Straight edge

12. Use of Tool:

a. Measure ground distances
b. Laying out doors and windows
c. Measuring and recording angles
d. Measuring distances on lumber

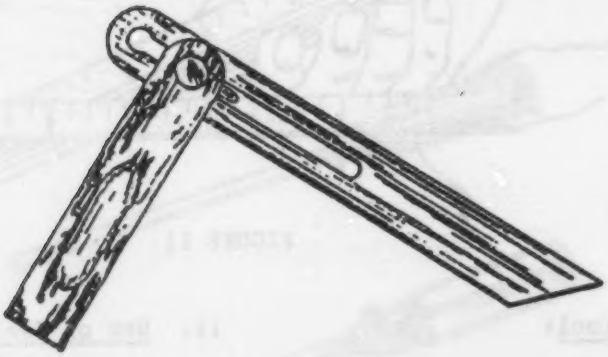

FIGURE 13

13. Name of Tool:	13. Use of Tool:
a. Tri-Square	a. Check lumber squareness
b. T-Square	b. Cut angles
c. Sliding T-Bevel	c. Layout and transfer angles
d. Carpenter's square	d. Measure lumber thickness

FIGURE 14

14. Name of Tool:	14. Use of Tool:
a. Combination square	a. Laying out buildings
b. Tri-Square	b. Marking circles
c. T-Square	c. Leveling walls and floors
d. Carpenter's square	d. Measuring, leveling, plumbing, and checking squareness

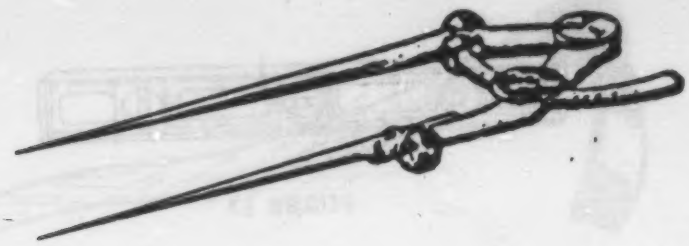

FIGURE 15

15. Name of Tool:

a. Scissors
b. Wing dividers
c. Protractor
d. Compass

15. Use of Tool:

a. Measuring, transfering or comparing distances
b. Marking holes that are to be drilled
c. Finding the center of boards
d. Squaring lumber

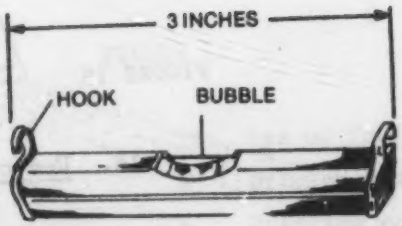

FIGURE 16

16. Name of Tool:

a. Carpenter's level
b. Line level
c. Tri-Square
d. Plumb Bob

16. Use of Tool:

a. Plumbing walls
b. Checking straight lines
c. Checking the level of lines
d. Plumbing floors

FIGURE 17

17. Name of Tool:

a. Carpenter's level
b. Line level
c. Plumb bob
d. Square

17. Use of Tool:

a. Level and plumb surfaces
b. Check squareness of corners
c. Check level of lines
d. Check squareness of lumber

FIGURE 18

18. Name of Tool:

a. Hatchet
b. Adz
c. Single bit Axe
d. Pick mattock

18. Use of Tool:

a. Splitting lumber
b. Shapping logs
c. Sharpening wood posts
d. Chopping trees, logs, and brush

FIGURE 19

19. Name of Tool:

a. Draw blade
b. Adz
c. Pick mattock
d. Pick

19. Use of Tool:

a. Digging hard earth
b. Cutting roots
c. Shapping logs
d. Driving wooden stakes

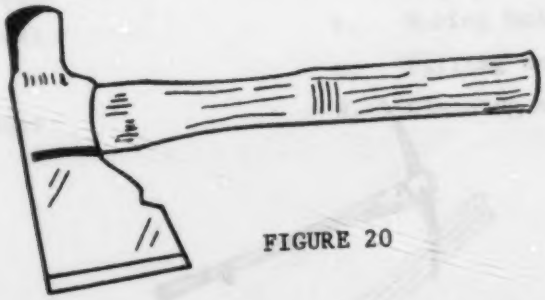

FIGURE 20

20. Name of Tool:

a. Ax
b. Half hatchet
c. Hammer
d. Nail cutter

20. Use of Tool:

a. Driving and pulling nails
b. Breaking concrete
c. Felling trees
d. Rough cutting lumber

FIGURE 21

21. Name of Tool:	21. Use of Tool:
a. Pick mattock	a. Breaking rocks
b. Ax	b. Shoveling dirt
c. Railroad pick	c. Digging and chopping
d. Pick	d. Cutting trees

FIGURE 22

22. Name of Tool:	22. Use of Tool:
a. Miner's pick	a. Tamping dirt
b. Pick	b. Breaking rocks
c. Pick mattock	c. Digging and chopping
d. Half hatchet	d. Digging and breaking up compact material

FIGURE 23

23. Name of Tool:	23. Use of Tool:
a. Post hole digger	a. Cutting roots
b. D-handle shovel	b. Boring holes in ground
c. Adz	c. Filling holes
d. Post hole auger	d. Cleaning out culverts

FIGURE 24

24. Name of Tool:	24. Use of Tool:
a. Post hole auger	a. Digging post holes
b. Long handle shovel	b. Digging trenches
c. Post hole digger	c. Planting trees
d. Pick mattock	d. Removing rocks from holes

FIGURE 25

25. Name of Tool:	25. Use of Tool:
a. D-handled shovel	a. Digging post holes
b. Post hole digger	b. Light digging
c. Post hole auger	c. Cleaning brush
d. Long handle shovel	d. Cleaning out post holes

FIGURE 26

26. Name of Tool:	26. Use of Tool:
a. Post hole digger	a. Cutting tree roots
b. Spade	b. Light digging
c. Hoe	c. Heavy digging
d. Long handled shovel	d. Tamping loose dirt

PART II

HANDTOOLS, MAINTENANCE AND SAFETY

This portion of the test consists of seven True or False statements. Mark the correct answer on the answer sheet.

27. (T) (F) Tools must always be cleaned before being stored.

28. (T) (F) Some tools may be washed.

29. (T) (F) Tools may be stored anywhere.

30. (T) (F) All cutting edges must be kept sharp.

31 (T) (F) Goggles should be worn when grinding.

32. (T) (F) Tools should be inspected before use.

33. (T) (F) Broken tools should be repaired before storing.

STANDARDS:

Forty or more correct answers is to be scored a GO. Less than forty correct answers is to be scored a NO GO and requires a review of the appropriate part of the lesson.

6/12B11/023

ANNEX B

STUDENT ANSWER SHEET

(Written)

Task: #051-201-1001 Use and Maintain Hand Tools

NOTE: This answer sheet is to be reproduced in sufficient quantities to satisfy testing requirements.

_____ _____

Date Student's Name

INSTRUCTIONS:

Circle the correct answer. Check your answers, then take all issued items to the manager for grading.

1.	Name	A	B	C	D	14.	Name	A	B	C	D
	Use	A	B	C	D		Use	A	B	C	D
2.	Name	A	B	C	D	15.	Name	A	B	C	D
	Use	A	B	C	D		Use	A	B	C	D
3.	Name	A	B	C	D	16.	Name	A	B	C	D
	Use	A	B	C	D		Use	A	B	C	D
4.	Name	A	B	C	D	17.	Name	A	B	C	D
	Use	A	B	C	D		Use	A	B	C	D
5.	Name	A	B	C	D	18.	Name	A	B	C	D
	Use	A	B	C	D		Use	A	B	C	D
6.	Name	A	B	C	D	19.	Name	A	B	C	D
	Use	A	B	C	D		Use	A	B	C	D
7.	Name	A	B	C	D	20.	Name	A	B	C	D
	Use	A	B	C	D		Use	A	B	C	D
8.	Name	A	B	C	D	21.	Name	A	B	C	D
	Use	A	B	C	D		Use	A	B	C	D
9.	Name	A	B	C	D	22.	Name	A	B	C	D
	Use	A	B	C	D		Use	A	B	C	D
10.	Name	A	B	C	D	23.	Name	A	B	C	D
	Use	A	B	C	D		Use	A	B	C	D
11.	Name	A	B	C	D	24.	Name	A	B	C	D
	Use	A	B	C	D		Use	A	B	C	D
12.	Name	A	B	C	D	25.	Name	A	B	C	D
	Use	A	B	C	D		Use	A	B	C	D
13.	Name	A	B	C	D	26.	Name	A	B	C	D
	Use	A	B	C	D		Use	A	B	C	D

PART II

27.	T	F	31.	T	F
28.	T	F	32.	T	F
29.	T	F	33.	T	F
30.	T	F			

Student's Name _____

STANDARDS: The student is scored GO if he answers 70% of the questions correctly (40 or more correct answers). If the student receives a NO GO, tell him why and record on the scoresheet any additional information required to show the cause of the NO GO.

GO	NO-GO

Remarks: _____

_____

_____

_____

Scorer's Signature

2/12B11/058

ANNEX C

STUDENT TEST

(WRITTEN)

TASK: #051-201-1002 Use and Maintain Pioneer Electric Tools

NOTE: This test is to be locally reproduced in sufficient quantities to satisfy local requirements.

TASK #051-201-1002: Use and Maintain Pioneer Electric Tools

TRAINING OBJECTIVE

TASK: Learn the use, maintenance, and safety procedures for pioneer portable power tools.

CONDITIONS: In a well lit area, given pencil, paper, and a display of tools and thier attachments. The display of tools and attachments will include: the electric drill, electric hammer, electric impact wrench, electric circular saw, electric sander, and a gasoline chain saw.

STANDARDS: IAW TM 5-461 and TM DGSC-3695-11 list the primary use, the maintenance and safety procedures for the portable power tools listed above.

STUDENT ADMINISTRATIVE INSTRUCTIONS

To take this test you will need only the test, an answer sheet, and a pencil. Read each requirement carefully and give your best answer.

Mark your answers on the answer sheet.

Requirement 1: What is used to tighten and loosen the ½" chuck?

a. Screwdriver
b. ½" Chuck Key
c. Allen wrench

Requirement 2: What is used to remove the wood bit chuck if it becomes stuck in the drill?

a. Screwdriver
b. ½" Chuck Key
c. Allen Wrench
d. Taper Shank Tool

Requirement 3: What holds an attachment in the portable electric hammer?

a. They Screw in
b. Drill Chuck
c. Spring Clip
d. Downward Pressure

Requirement 4: What is the star drill chuck used for?

a. Turning the star drill
b. Tightening the star drill
c. Sharpening the star drill
d. Aiming the star drill

Requirement 5: How is the direction of turn reversed on the electric impact wrench?

a. Pushing the switch to reverse
b. Reversing the ratchet on the socket retainer
c. Can't be reversed
d. Turning the direction control cap

Requirement 6: How are the attachments on the electric impact wrench guided?

a. Not guided while in use
b. By hand
c. By the pistol grip
d. By the universal joint

Requirement 7: What is the portable electric circular saw designed to do?

a. Cross cut wood
b. Rip saw wood
c. Neither a or b
d. Both a and b

Requirement 8: Which of the following can you adjust on the circular saw?

a. Depth and angle of cut
b. RPM
c. Blade guard
d. Size of circle

Requirement 9: The spanner wrench on the portable electric sander is used to:

a. Tighten and loosen the wire brush
b. Tighten and loosen the spindle adapters
c. Tighten and loosen the center screws
d. Tighten and loosen the rotary planer head

Requirement 10: How is the chain on the gasoline chain saw oiled during usual cutting conditions?

a. Squirt can
b. Automatically
c. Thumb operated pump
d. Does not need oil

Requirement 11: How fast should the chain saw be running when first engaged to cut?

a. Started after it is engaged
b. ¼ throttle
c. ½ throttle
d. Full throttle

Requirement 12: Which direction should the chain saw cut?

a. Along the bottom of the blade toward the operator
b. Along the top of the blade toward the operator
c. It cuts in both directions
d. Works equally will in either direction

Requirement 13: Which of the following answers are correct when maintaining portable electric tools (mark all correct answers)?

a. Examine eletrical cords
b. Use compressed air to clean areas that cannot be wiped clean
c. Unplug the tool and clean it with water.
d. Run the tools in reverse to help clean them
e. Coat rustable metal parts with oil

Requirement 14: Which of the following answers are correct when changing attachments on portable electric tools (mark all correct answers)?

a. Check for correct power source
b. Turn the tool off
c. Disconnect the power source
d. Disconnect the spark plug

Requirement 15: Which is NOT one of the three most important considerations of good chain maintenance on a chain saw?

a. Keep it well oiled
b. Keep the saw at full throttle
c. Keep it properly tightened
d. Keep it sharp

INSTRUCTIONS

When you have finished all requirements take this test and your answer sheet to the manager for grading, he will give you further instructions after checking your answers.

3/12B4/010

ANNEX D

STUDENT ANSWER SHEET

(WRITTEN)

TASK: #051-201-1002 Use and Maintain Pioneer Electric Tools

NOTE: This answer sheet is to be reproduced locally in sufficient quantities to satisfy local requirements.

_____ _____

Date Student's Name

Circle the letter representing the correct answer(s). Be sure to stay on the correct line.

Requirement #1	A	B	C	D	
Requirement #2	A	B	C	D	
Requirement #3	A	B	C	D	
Requirement #4	A	B	C	D	
Requirement #5	A	B	C	D	
Requirement #6	A	B	C	D	
Requirement #7	A	B	C	D	
Requirement #8	A	B	C	D	
Requirement #9	A	B	C	D	
Requirement #10	A	B	C	D	
Requirement #11	A	B	C	D	
Requirement #12	A	B	C	D	
Requirement #13	A	B	C	D	E
Requirement #14	A	B	C	D	
Requirement #15	A	B	C	D	

STANDARDS: Thirteen correct answers is graded a GO. Less than 13 correct answers is graded NO GO and requires a review of the lesson prior to student retesting. If a student receives a NO GO, tell him the reason why and record on the scoresheet any additional information required to show the cause of the NO GO.

GO	NO GO

Student's Name

Manager's Name

3/12B4/011

ANNEX E

Student Test

(Written)

Task: #051-201-1003 Use and Maintain Pneumatic Tools

NOTE: This test is to be reproduced locally in sufficient quantities to satisfy local requirements.

PNEUMATIC TOOL TEST

INSTRUCTIONS TO THE STUDENT:

This is a multiple choice test consisting of two parts. Part I is a matching test where you must match the tool in the picture to its name in the left hand column immediately below the picture. In the right hand column, below the picture, you must circle the correct answer(s) to questions about the safe operation and proper maintenance of pneumatic tools.

Take your time and think about your answer before you mark the answer sheet. Do not write in the Test Booklet, mark your answers on the answer sheet.

When you understand these instructions, you may begin.

Figure #1

1.	Name of tool:	1.	Use of tool:
a.	Nail Driver	a.	Lubricate pneumatic tools
b.	25 pound paving breaker	b.	Drive large nails
c.	Wood boring drill	c.	Drill holes in lumber
d.	Airline oiler	d.	Used with attachments to break concrete

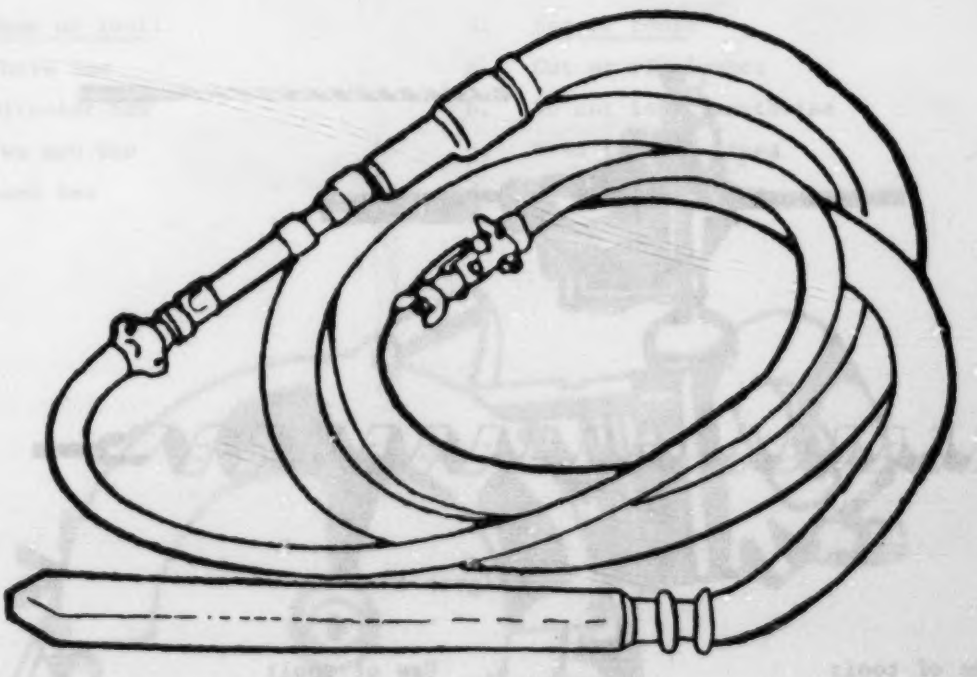

Figure 2

2.	Name of tool:	2.	Use of tool:
a.	A length of air hose	a.	Compact earth in close places
b.	Concrete vibrator	b.	Extend airline length
c.	Backfill tamper	c.	Provide oil to tools
d.	Airline oiler	d.	Compact concrete

Figure 3

3.	Name of tool:	3.	Use of tool:
a.	Nail Driver	a.	Breaks up hardened concrete
b.	Backfill Tamper	b.	Removes air from fresh concrete
c.	80 pound paving breaker	c.	Compacts earth
d.	Concrete vibrator	d.	Drives large nails

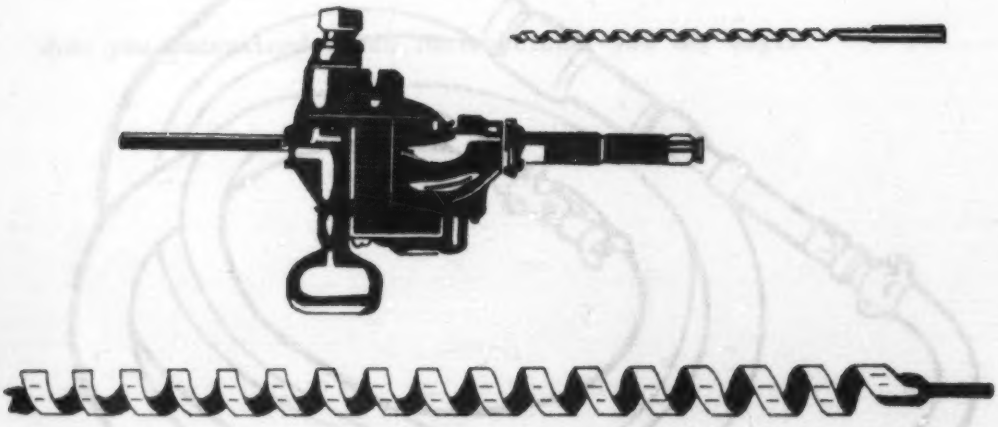

Figure 4

4.	Name of tool:	4.	Use of tool:
a.	Brace and Bit	a.	Drills holes in heavy timber
b.	Circular saw	b.	Drills holes in metal
c.	Wood Auger	c.	Cuts lumber
d.	Wood boring drill	d.	None of the above

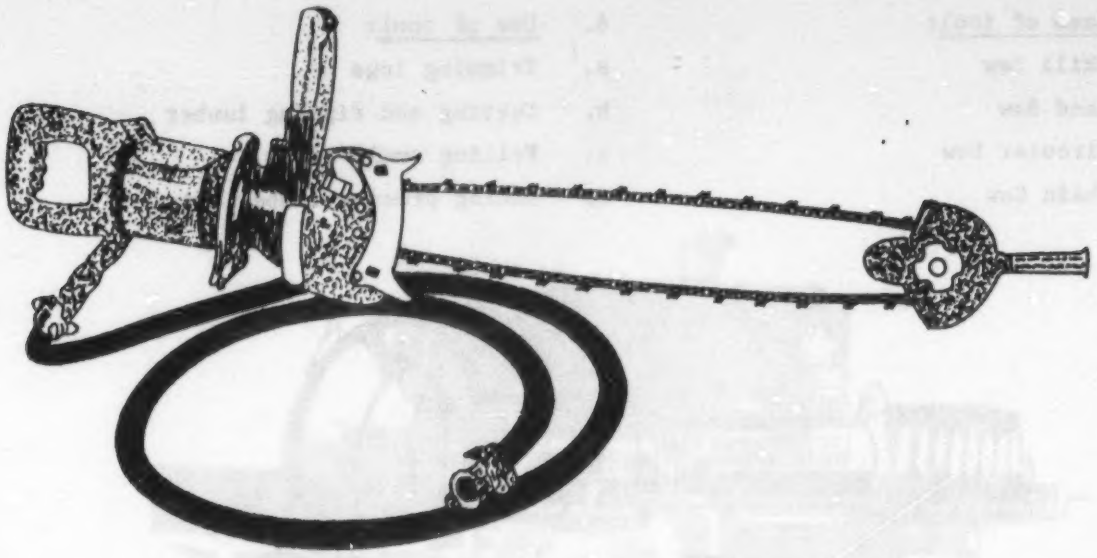

Figure 5

5. Name of tool:

a. Chain Saw

b. Circular Saw

c. Two man Saw

d. Band Saw

5. Use of tool:

a. Cut or rip lumber

b. To cut logs lengthwise

c. Used to fell trees

d. None of the above

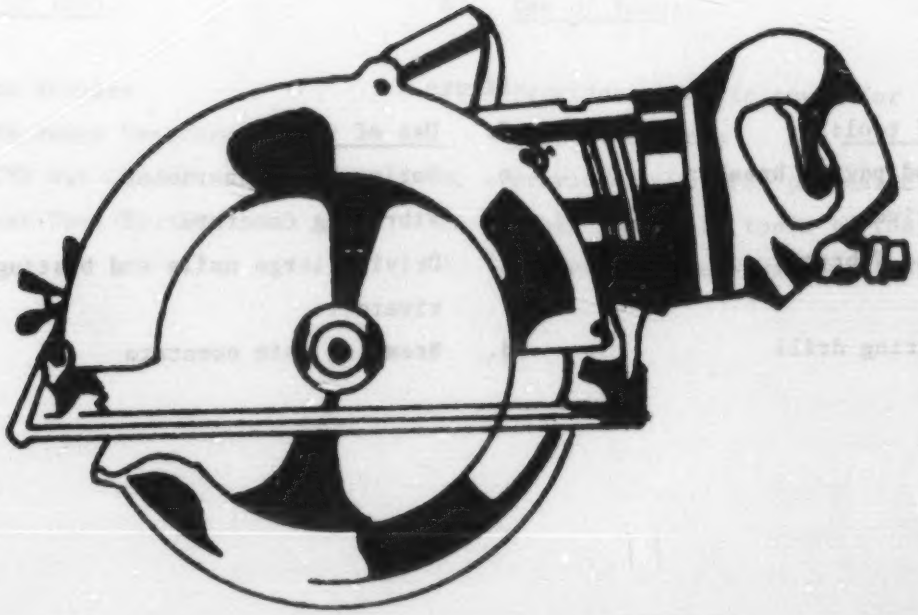

Figure 6

6. Name of tool:	6. Use of tool:
a. Skill Saw	a. Trimming logs
b. Hand Saw	b. Cutting and ripping lumber
c. Circular Saw	c. Felling small trees
d. Chain Saw	d. Making precise lumber cuts

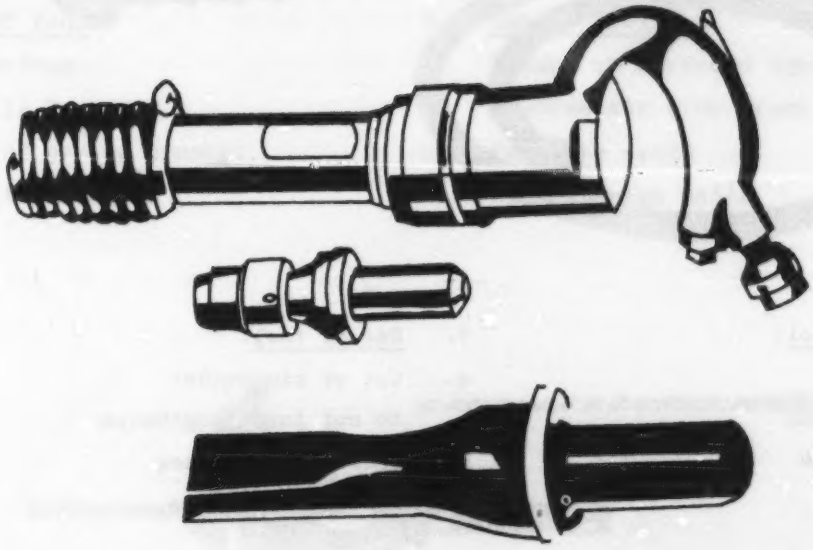

Figure 7

7. Name of tool:	7. Use of tool:
a. 25 pound paving breaker	a. Boring holes in timber
b. Nail driver	b. Vibrating concrete
c. Concrete Vibrator	c. Driving large nails and busting rivets
d. Wood boring drill	d. Breaking thin concrete

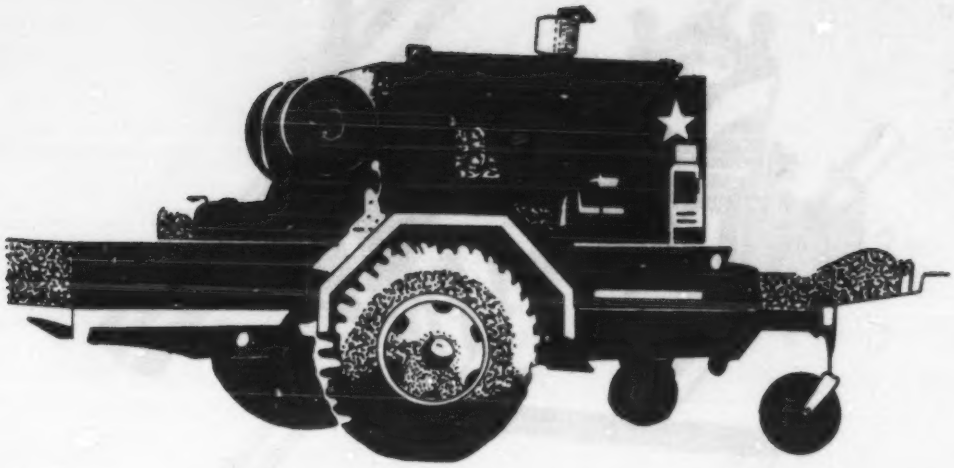

Figure 8

8. Name of tool:

a. 2½ ton Trailer
b. 250 KW Power Generator
c. 250 CFM Air Compressor
d. Pioneer Tool Trailer

8. Use of tool:

a. Provides electric power for pneumatic tools
b. Provides power for pneumatic tools
c. Hauls pneumatic tools to the job site
d. Stores and hauls Pioneer tools

Figure 9

	Name of tool:		Use of tool:
a.	Paving breaker 25 pound with attachments	a.	Break concrete and asphalt
b.	Paving breaker 80 pound with attachments	b.	Loosen hard earth and clay
c.	Backfill tamper	c.	Tamp and drive metal sheeting
d.	Nail driver w/attachments	d.	All the above

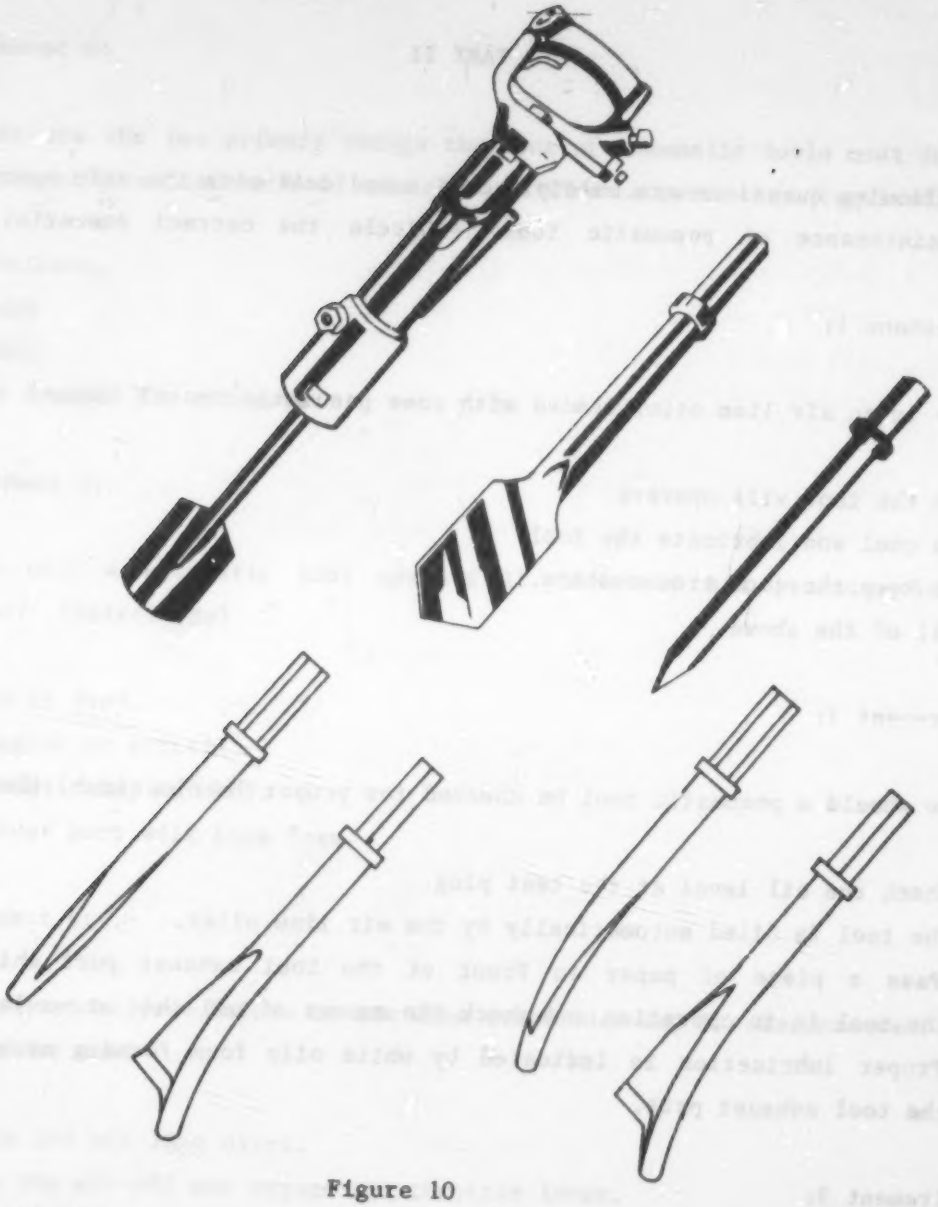

Figure 10

10. Name of tool:

a. Clay spade

b. Metal drum ripper

c. Nail driver

d. Paving breaker 25 pound with attachments

10. Use of tool:

a. Drill holes in concrete

b. Dig in clay and hard dirt

c. Drive large nails

d. Spade, trim, and cut barrels

PART II

The following questions are multiple choice and deal with the safe operation and maintenance of pneumatic tools. Circle the correct Answer(s).

Requirement 1:

Why is an air line oiler needed with some pneumatic tools? (Select one)

A. So the tool will operate
B. To cool and lubricate the tool.
C. To keep the tool from rusting.
D. All of the above.

Requirement 2:

How should a pneumatic tool be checked for proper lubrication? (Select one)

A. Check the oil level at the test plug.
B. The tool is oiled automatically by the air line oiler.
C. Pass a piece of paper in front of the tool exhaust port while the tool is in operation and check the amount of oil that accumulates.
D. Proper lubrication is indicated by white oily foam forming around the tool exhaust port.

Requirement 3:

What is used to cool the pneumatic concrete vibrator? (Select one)

A. Oil.
B. Air.
C. Liquid around it.
D. Requires no cooling.

Requirement 4:

What are the two primary things the user of pneumatic tools must do concerning maintenance of the tools? (Two answers are required)

A. Lubricate.
B. Clean
C. Paint.
D. Use correct air pressure.

Requirement 5:

How will a pneumatic tool operate if incorrect air pressure is used? (Select one)

A. Slow or fast.
B. Sluggish or erratic.
C. Automatically cut off.
D. Exhaust port will form foam.

Requirement 6:

What must be done before an air line connection may be disconnected? (Select one)

A. Drain the air line oiler.
B. Turn the air off and engage the throttle lever.
C. Lock the tool.
D. Remove tool attachments.

Requirement 7:

When using a paving breaker on a hard slick surface, how should the surface be prepared? (Select one)

A. Use a sledge hammer to roughen the surface.

B. No preparation needed.

C. Spray with water.

D. Hold the tool in place with your feet.

11/12B6/053

ANNEX F

Student Answer Sheet

(Written)

Task: #051-201-1003 Use and Maintain Pneumatic Tools

NOTE: This answer sheet is to be reproduced locally in sufficient quantities to local requirements.

_____ _____

Date Student's Name

INSTRUCTIONS TO THE STUDENT:

Check your answers, then take all issued items to the manager for grading.

1.	Name	A	B	C	D
	Use	A	B	C	D
2.	Name	A	B	C	D
	Use	A	B	C	D
3.	Name	A	B	C	D
	Use	A	B	C	D
4.	Name	A	B	C	D
	Use	A	B	C	D
5.	Name	A	B	C	D
	Use	A	B	C	D
6.	Name	A	B	C	D
	Use	A	B	C	D
7.	Name	A	B	C	D
	Use	A	B	C	D
8.	Name	A	B	C	D
	Use	A	B	C	D
9.	Name	A	B	C	D
	Use	A	B	C	D
10.	Name	A	B	C	D
	Use	A	B	C	D

PART II

1.	A	B	C	D
2.	A	B	C	D
3.	A	B	C	D
4.	A	B	C	D
5.	A	B	C	D
6.	A	B	C	D
7.	A	B	C	D

Student's Name _____

STANDARDS: Twenty-one or more correct answers is graded GO. Less than 21 is graded NO GO and requires a review of the lesson prior to retesting. If the student receives a NO GO, tell him why and record on the scoresheet any additional information required to show the cause of the NO GO.

GO	NO GO

REMARKS: _____

2/12B6/055

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